

# OPERATIONS MANUAL

# OHANA

Jeanneau Sun Odyssey



## Welcome aboard!

We are happy you have chosen *Ohana* for your sailing vacation. We are happy that you have chosen AYC Charters and the vessel Ohana for your vacation. We hope you enjoy your cruising experience in the lovely islands of the Pacific Northwest.

Ohana, is Hawaiian for Family. Everything on the boat is part of the Ohana Family.

We trust that this manual will help you become more familiar with your boat. If you have any further questions, about the boat or your itinerary, please do not hesitate to ask the AYC Staff.

The information summarized in this manual is intended to assist all skippers, crew and guests aboard in feeling more comfortable with the basic systems and how they work. **If something isn't familiar to you, please check these notes.** If the information is unclear, incomplete, confusing, or otherwise less than helpful, please help us to add, change, or restate the information so that it conveys the desired results. Please feel free to add your suggestions for other information or clarifications at the end of this manual, or simply add a comment or two in the margin as appropriate. Your suggestions will be incorporated into future revisions.

In addition to the information contained in this manual; you will find a binder that contains information from manufacturers on various systems and items aboard **Ohana**. There is also a manual for the Yanmar engine located at the navigation station. Feel free to consult these manuals if the need arises.

You will see this is posted as a **no smoking** vessel. We ask that you restrict smoking to the cockpit or decks and/or dockside in order to maintain a pleasant sailing environment for all guests. Your co-operation is appreciated.

There is a logbook stored by the navigation station. Please feel free to use the logbook to document your adventures if you wish. You may also use this logbook to make any comments and/or suggestions about improving **Ohana** for future charters. Please feel free to email us if you would like to make any other comments or suggestions as well. We are interested in ensuring **Ohana** is not only well maintained, but also improved over time. We look forward to hearing from you.

We are sure you will enjoy sailing the beautiful islands of the Pacific Northwest aboard **Ohana**. If you have questions about the boat or about places to visit, please do not hesitate to ask the AYC staff. Have a great sailing adventure, and again thanks for choosing **Ohana!**

# Ohana

Max Passengers	10 - 12
Cabins	4
Heads	4
Showers	3
L.O.A.	50',4"
L.W.I.	49',5"
Beam	15',6"
Draft	7'
Engine	75HP Turbo Yanmar
Fuel	58 Gal
Water	180 Gal
Sail	1227 Sq. Ft.

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# BOAT OPERATON

## ENGINE

*Ohana* has a Yanmar Turbo 75hp auxiliary engine (Model – 4JH4-TE, 4 Cylinder). The engine drives a two-blade propeller forward and reverse. There is a single control lever that operates both the throttle and transmission. On the engine control panel there are gages for RPM.

A sound alarm is provided to indicate high fresh water temperature and low oil pressure. The engine will propel *Ohana* at about 7 - 8 knots in calm water at 2800 RPM. We ask that you maintain engine RPM between 2600 and 2900 for cruising. Higher throttle settings will only minimally increase speed, but will greatly increase fuel consumption and wear on the engine. Please limit higher throttle settings for emergency situations.

*Ohana* has noticeable prop-walk to port in reverse. When in reverse, be careful to keep a firm grip on the wheel and use only low RPMs.



## Engine Inspection

Each day you are planning to use the engine, you should check the COOLANT, OIL, BILGES, BELTS, and SEA STRAINER by remembering you're "**WOBBS**": **W**ater (Coolant), **O**il, **B**ilges (Inspect and Pump-out), **B**elts and **S**ea Strainer



### **Engine Coolant**

Check the level of coolant in the expansion tank. Engine coolant is a mixture of 50% antifreeze and 50% water. There is coolant kept on board and should be located during your orientation.

### **Engine Oil**

Check the oil level in the engine with the dipstick located on the starboard side of the Engine. The oil level should be anywhere between the high and low marks. Spare oil is kept on board, and should be located during your orientation.

The companionway ladder must be lifted to access the engine to add oil.

If you need to add oil, please use great care not to overfill. Running the engine with too much oil will cause damage.

### **Heating/Air Condition System**

Ohana is equipped with 3 Domestic DTU 12 12,000 BTU self-contained air conditioning – also works as heat pump heat. They run off of shore power or generator. You can control each of the 3 units separately: (1) forward port stateroom, (2) the main salon, (3) aft port stateroom.

They work off saltwater flowing through the system and will not work on batteries.

### **Bilges**

Remove the largest cabin sole panel under the dinette table to check the bilges. There is normally a small amount of water in the bilge. Check for debris, oil, or anything unusual. The Yanmar engine is cooled by a heat exchanger. The engine pumps sea water through a sea water strainer, then through a heat exchanger that cools the coolant fluid, thus cooling the engine. The sea water is then pumped overboard.

### **Belts**

Check the general condition of the belts, hoses, and fuel lines.



## Sea Strainer

The sea water strainer is located forward of the engine under the companionway ladder. It should be checked daily, as it can clog with seaweed and other debris. To check the strainer, shine a flashlight through the plastic bulb. If debris is visible it will have to be removed. To clear debris from the strainer, close the thru-hull valve located aft of the strainer. Unscrew the plastic bulb holding the strainer. Be careful not to lose the rubber O-ring. Rinse the strainer and plastic bulb and replace them with the O-ring in place. Do not fully tighten initially because the air needs to be removed. Slowly open the thru-hull valve and allow the air in the plastic bulb to escape. When the air has escaped, tighten the plastic bulb by hand and observe for leaks. The continued supply of seawater is critical to the operation of the engine.

## Startup

Place the throttle/shift lever in low/neutral (straight up and centered). Push in the red button located on the throttle lever to disengage the linkage to the transmission, then move the throttle forward about one third. There is a natural stop at this setting. Push the power button, then push the start button, alarm will sound for a few seconds. When starting cold, **allow the engine to warm up at an idle for TEN MINUTES** prior to applying a load. If load is applied before the engine warms it may seize. Normal idle speed is 800 to 1000 RPM. Be sure the audible alarm is not sounding. It should stop when the engine starts. **NOTE:** Do not hold the start key for more that FIFTEEN SECONDS at a time. If the engine does not start the first time, wait a few seconds before trying again. Please remember NEVER PUSH THE POWER BUTTON WHILE THE ENGINE IS RUNNING! While the engine is warming, check for water exiting the exhaust. You may not be able to see the water, but you should be able to hear it exit with the exhaust.

## Shifting

To engage the transmission, move the throttle/shift lever to the low/neutral (straight up) position until the red button pops back out. Push throttle forward for forward propulsion, or back for backward propulsion.

## Shutdown

Place the throttle/shift lever in neutral and allow the engine to cool down for several minutes. Usually this is about the amount of time it takes to secure your lines and plug into shore Power. Push the STOP button until the engine stops. The audible alarm will sound until the power button is pushed.

## Fueling Up

You will need to fuel up before returning to the slip at the end of your charter. The fuel tank holds 58 gallons of diesel fuel. Before refueling, have an "oil/fuel sorbs" handy to soak up spilled fuel. You should have a rough idea of the number of gallons you will need by the fuel gauge and by the hour meter. *Ohana* uses approximately 1 gallon per hour. The fuel filler cap is located on the starboard deck aft. CHECK THAT YOU HAVE THE CORRECT DECK OPENING! Do not add water or pump-out at the same time you are fueling. Use only **DIESEL FUEL!** Place the diesel fuel nozzle into the tank opening, pump slowly and evenly, and note the sound of the fuel flow. Pumping too fast may not allow enough time for air to escape, which may result in spouting from the tank opening. As the tank fills, the sound will rise in pitch or gurgle. Pay attention to the tank overflow vent. The sound may indicate that the tank is nearly full. Top off carefully, and be prepared to catch spilled fuel. **Spillage may result in a fine from law enforcement.** Replace deck cap. *Caution – Clean up splatter and spillage immediately for environmental and health reasons. Wash hands with soap and water thoroughly.*

## Trouble Shooting Engine Problems

### Engine Overheating

1. **Immediately shut engine down.** The most likely cause is clogging of the sea water strainer. This condition may be preceded by black smoke from the exhaust. Follow procedure above to clear the strainer. Check to be sure water is exiting with the exhaust. If water is not exiting with the exhaust, then check the sea strainer. If it is full of sea weed or eel grass, close the raw water intake then open the sea strainer and clean out, replace cover and open the raw water intake valve.



2. If seawater is getting to the engine, the next likely cause is low coolant level. Check the coolant level by observing the expansion tank. If coolant level is low, add coolant from the pre-mixed jug. Never open the radiator cap when the engine is hot, as this could cause severe burns.

### Low Oil Pressure

1. **Immediately shut engine down.**
2. Check oil level. Add oil if necessary. Use care not to overfill oil.
3. If the engine oil level is not low, **DO NOT RESTART**. Contact AYC or other personnel listed on the emergency contact list in the gray manual.

#### 4. **Alternator Failure**

You may keep running the engine, but be aware the batteries are not being charged. Conserve on engine and battery use. Contact AYC immediately.

### Engine Dies And Won't Restart

Contact AYC immediately.



## GETTING UNDERWAY

Close the portholes, windows, and forward hatch. Disconnect shore power and store cord. Once outside the marina, idle the engine while the crew brings in fenders and lines. Assign one crew member to be in charge of securing ports and assign one crew member to be in charge of the dinghy, if towing. Shorten the line on all close quartering maneuvers.

### Sails And Rigging

The fully battened, mainsail is the main driver under sail in this sloop rig sail plan. It is this feature that allows for great sailing in light air. This sail plan however requires early reefing in stronger winds. 15 knots would not be too early for the first reef. This rig has swept back spreaders and a double backstay. This allows free access to the swim platform. It also means that dead downwind sailing places the sail on the spreaders. A broad reach, with close attention to keeping the sail off the spreaders, is recommended. As there is no “preventer,” take care with jibing – for your sake, and for the protection of the gear. The jib is furled. The furling line is led aft to the cockpit. To unfurl the headsail, (a) uncleat the furling line, (b) wrap the sheet around the appropriate power winch, (c) pull the sheet aft while maintaining tension on the furling line, (d) cleat when desired reefing level has been achieved. To furl the jib, apply slight tension on the jib sheet while pulling on the furling line until it is fully furled. Place three or so wraps of the jib sheets to hold the sail.

Jib sheets are led to the cockpit to the winches. Use the jib sheet cleats as little as possible as they tend to fray the lines. Adjust fairleads forward in heavy wind, aft in light wind. The jiffy reefing has two reefs. To apply a reef, go head to windward, lower the mainsail halyard, hook the tack cringle for the chosen reef over the reefing hook at the forward end of boom, snug the associated reef line, then raise the mainsail halyard and resume sailing. Jib sheets, mainsheet, halyards, and traveler are all operated from the cockpit. There is a soft boomvang. A lazyjack type system with sail cover on the boom simplifies sail handling. There is no whisker pole, and no spinnaker. There is a topping lift, which needs to be released after raising the mainsail. Reset the topping lift upon lowering the mainsail.

### Troubleshooting Sails and Rigging

1. **Mainsail resists being raised:** Check all lines. Both reefing lines should be loose and flopping. The boomvang should be loose. The battens should not be stuck on the lazyjack. If they are, lower the sail and be sure to be head to wind on raising the sail again.
2. **Furling line gets stuck partway through the furling process:** This is usually due to not applying proper tension on lines in furling and unfurling process. Try letting the jib out and repeating the process. Be sure you are headed into the wind to reduce pressure on the rig. If this fails you could have an over-ride in the furling drum that needs to be fixed.
3. **Unable to point with reef in place:** Probably have not snugged the reef line sufficiently. Repeat process and be sure lines are snug before raising the halyard.

## DINGHY

When towing the dinghy, pull the painter up tight to the boat when maneuvering in the marina to avoid getting the line wrapped around the propeller. The line may be lengthened when underway. Consider assigning one of your crew “dinghy duty” to monitor the status of the dinghy. In rough weather, lift the dinghy with a halyard onto the foredeck and tie down upside down or deflate and compress into bag. If dinghy is tied onto the foredeck, please place a cockpit throw cushion under the dinghy transom to prevent scratching of the forward hatch or cabin top.

Be sure when towing your dinghy, that someone is always keeping an eye on the painter when slowing down or stopping. When rowing your dinghy to shore, use **EXTREME CAUTION**. Choose an area free of any large rocks that might cause harm in beaching. Lift up on and carry the dinghy to bring it up to higher ground. Please never drag it. Secure it when leaving as the tides come up quickly. The foot pump for the dinghy is stored in the starboard cockpit lazarette. There is a patch kit onboard if the dinghy is ruptured.

## DOCKING

Have your crew make ready the lines and fenders, and give clear instructions on how you will be docking. Have bow, stern, and spring lines ready. Often times it is best to lead dock lines to the mid section of the boat where your crew member can easily step off and secure either line. As you are coming in to dock, have your best communicator midships to give you distances from the dock. It is often hard to judge how close the dock is. Calling out distances (i.e. 20 feet, 10 feet, 4 feet, etc.) will only add to a successful docking. If you find you are too far off the dock, **BACK OFF** and re-approach. It is better to re-approach than to lose crew over the side...

## MOORING CANS (BUOYS)

The Washington State Parks sticker on *Ohana* allows you to use the mooring cans in the marine parks for free. You only need to register at the kiosk, usually located at the head of the docks. Mooring cans have a metal triangle at the top, upon which is a metal ring. The metal ring is attached to the chain which secures your boat. **IT IS VERY HEAVY**. The strongest member of your crew should be chosen for this job. Come up to the mooring can into the wind as you would for anchoring. Have crew members on the bow, one with a boat hook and one with a mooring line secured like a bow line. As you are coming slowly up to the can, have the crew holding the boat hook point at the can with the hook so the skipper always knows where it is. Hook the can and bring the ring up to the boat to allow the second crew member to thread the ring with the line. Release the boat hook. If your mooring line is led out the starboard cleat, bring the end of the line back to the port side cleat. You will essentially create a bridle with about 10 feet of slack from the cleats to the can.

# ANCHORING

*Ohana* carries a plow type anchor on the bow attached to 215 feet of chain and 200 feet of 5/8-inch rode. There is a windlass which is controlled by a hand-held controller at the anchor.

## **Setting the anchor**

Let out sufficient anchor rode (chain and line) before setting the anchor. Color markers are placed every 30 feet on the chain and nylon rode. If the anchorage is crowded, put down at least a 3 to 1 scope (60 feet of rode for 20 feet of water at highest tide). Back the anchor in with a short burst in reverse from the engine. Then let out additional scope dependent upon conditions. If the anchorage is less crowded, more scope is always a better option. The holding power of the anchor increases greatly as more scope is added. There is a second anchor in the starboard cockpit lazarette. This can be set off the bow or the stern as needed. Be sure to secure the bitter end, as it is not secured in the lazarette.

## **Raising the anchor**

You can only run the windless when the engine is running. Coordinate the maneuver with the helmsperson to remain steady above the anchor as it is raised. As the anchor rises, be careful not to allow it to swing against the hull.

# BOAT SYSTEMS

## ELECTRICAL SYSTEMS

**Ohana** has three electrical systems, 110 volts shore power, Inverter which runs off the batteries and converts the power to 100 volts, and a 6.5kw generator, which is the same as being hooked to shore power. It enables you to run air conditioning, heat, hot water, and anything you would want to run off of 110 volts. All 3 systems are controlled at the electrical panel at the navigation station.



### 110-Volt AC System

**Ohana** is equipped with the capacity to plug into dockside shore power (110 volt AC) using the heavy yellow shore power cord. You have to have the second one hooked up, the monitor to the right in order to use the heating and air conditioning. This system powers everything on the AC circuit breaker panel: - 110 volt AC wall outlets

- Battery charger
- Water heater
- Heat & Air

## Connecting to shore power

Check the power rating/plug size of the nearest dock receptacle (that is 30 amps, 20 amps, or 15 amps). If necessary, add a shore power cord adapter located in the compartment forward of the navigation station. The procedure to hook up to shore power is as follows:

1. Make sure the “AC Main” circuit breaker is off.
2. Turn off the circuit breaker located at the shore side outlet on the dock.
3. Connect the plug to the shore side outlet. Give the plug a small twist clockwise to lock.
4. Turn on the circuit breaker at the dock.
5. Turn on the “AC Main” circuit breaker and any of the circuit breakers for the 110 volt AC systems desired.

The shore power cords coming off the bow can be wrapped loosely around the bowline.

On shore power, the electrical outlets will be functional under the 110 volt AC system. They will not work under the 12-volt DC system.

## 12 Volt DC System

This system is powered by the marine batteries aboard *Ohana* and powers everything onboard not powered by the 110 volt AC system.

The House battery is Battery #2 and is located in the starboard cockpit lazarette. The engine start battery is Battery #1 and is in the engine compartment just forward of the engine. Make sure “BOTH” batteries are ON when under power, or when connected to shore power for recharging. When at anchor and/or not on shore power, turn Battery #1 off. This way even if the House battery is low you will still have power to start the engine. *Note -- Do not change the position of the battery switches while the engine is running, or the alternator diodes will be damaged. Change positions with the engine off.*

The running, steaming, and anchor lights are all controlled from the electrical panel above the navigation table. Interior lights are also powered from a circuit breaker on this panel. Each interior light also has an individual switch at each fixture. There are two 12-volt auxiliary plugs (cigarette lighter plugs). One located on the electrical panel, and one in each stateroom.

When not connected to shore power, the house battery is providing all power. Avoid draining the batteries by using power sparingly at anchor:

- Turn the refrigerator off at night, as it will still stay cold.
- Use only one or two lights at a time.
- Turn off systems not in use such as instruments, VHF, autopilot, running lights, steaming lights, tank indicators, stereo, etc.
- Turn off hot water heater unless using the generator.

Monitor the use of onboard electricity carefully with your voltmeter located at the navigation station.



## **Generator**

The Ohana is equipped with a 6.5KW Northern Light Generator. The generator is mounted in a locker which provides little to no horizontal access for inspection. The hour meter on the generator is on the chart table.

## **Troubleshooting Electrical Systems**

1. Battery running low. Signs of this are lights dimming, stereo not working. Immediately start engine and run for a period of time or start the generator.

## SANITATION SYSTEM

### Marine Head (Jabsco Quietflush electric)



It is imperative that every member of the crew be informed on the proper use of a marine head. The valves, openings, and pumps are small and will clog easily. If the head gets clogged, it is your responsibility! Always pump the head for small children so you can be certain of what is being flushed. Note: Never put in paper towels, napkins, sanitary products, household T.P., or food into marine heads. ***Use only marine T.P. provided by AYC.***

To use toilet, use the top button to add water to wet the bowel after using head, use the lower button to remove move waste from bowl, using an electric macerater pump until the ware runs clean. And the bowl is dry. See Instructions in the Jeanneau manual on board.

Your toilet raw water intake is located \_under the vanity, or the white door close to the floor if you should need to shut off the water to the toilet.

## **Holding Tank**

Your sanitation holding tanks holds 8 gallons per head. Be aware of the rate of waste production (about 1 gallon/flush). If you overfill your tank, you will break a hose, clog a vent, or burst the tank which is an indescribable catastrophe! And a very expensive fix for you. Empty the tank at least every other day to avoid any problems.

The holding tank is located in a cupboard on the wall of each head. Some may be subject to a visual check with a flashlight or the “watermelon test” by thumping it. The holding tank is emptied in one of two ways:

#1 At the pump-out station, remove the deck waste cap, which there are 2 on each port and 2 on starboard side, above the heads. Insert the pump-out nozzle into the waste opening. Double-check that you have the right deck opening! Turn on the pump on the dock and open the valve on the handle of the hose. When pumping is finished, close lever on handle and turn off pump. Remove from deck fill. If there is a fresh water hose on the dock, rinse the tank by adding water for 1-2 minutes. Then re-pump to leave the tank rinsed and clean for the benefit of the next charterer. This also eliminates any head odors.

#2 The tank’s contents can also be discharged at sea by using the macerator (Sealand pump). To operate the macerator, open thru-hull located in each head, under the white door close to the floor. *discharge is only allowed in Canadian waters. It is illegal to discharge overboard within U.S. waters.*

**DO NOT CONFUSE THE HOLDING TANK CAP AND THE DIESEL FUEL TANK FILLER CAP. BOTH ARE LABELLED. READ BEFORE USING EVERY TIME.**

### **Overboard Discharge:**

The holding tank is above the water line and may also be emptied overboard when NOT in U.S. Waters. By law, NO overboard pumpout into sea water is allowed within U.S. Waters. To empty the holding tank open the thru-hull valve located in the lazarette. It is important that every member of the crew be informed on the proper use of the marine toilet. The valves, openings, and pumps are small and may clog easily. **If the toilet clogs, it is YOUR RESPONSIBILITY!** Always pump the head for children, so you can make sure nothing foreign is being flushed. **Caution** – Never put paper towels, tampons, Kleenex, sanitary napkins, household toilet paper, or food into the marine toilet. Use only the special dissolving marine toilet tissue provided by AYC.

# **WATER SYSTEM**

## **Fresh Water Tank/ Pump/ Hot Water Heater**

The fresh water tank(s) holds 160 gallons and one of the tanks is located in the bow and second one in the stern. Observe the water level. Waste water from the sinks and showers drains overboard through various thru-hulls usually located under the sinks. To fill the tank, remove the deck water fill cap located on the stern, port side. Fill the tank avoiding flushing debris into the tank. Do not fill water and diesel at the same time! A manifold to switch tanks is located under the settee by the navigation desk. Only open 1 tank at a time!

The water pressure pump is located behind the white cushions to the right of the nave station. Activate the pump by turning on the breaker at the DC panel. If when in use, the pump continues to run, you are either out of water or have an air lock which can be corrected by opening a faucet. If you run out of water, shut off pump and turn off hot water heater on AC panel. You can cause serious damage to the heating element.

The hot water heater has a 60-gallon capacity. It is heated when the AC breaker is on while connected to shore power or when connected to shore power. Do not use the water heater if the water level is low. The water heater is located deep in the stern aft of the engine.

## **Shower**

Before taking a shower, make sure the water pressure and shower sump pump breakers are on. Take short "boat" showers by turning off the water between soaping and rinsing. Please wipe down the shower stall and floor when finished to keep shower tidy. Pick up any accumulation of hair in the drains as it clogs the hoses. Ensure that the faucets are tightly turned off after each shower to save water. There is also a transom shower.

# GALLEY SYSTEMS

## Propane Stove/Oven

The galley has a three burner EVO gimbaled propane stove with oven. The propane tank is located in the aft starboard, rear in a locker. Open the tank valve. Go to the DC panel and turn on the breaker labeled located next to the stove. Then turn on the propane solenoid switch in the galley. When lighting the first time, allow a few seconds for the gas to travel from the tank to the stove. You might need to keep the stove top or the oven in the light position for a few more seconds while the thermocoupler warms up.

## Refrigeration

Turn on refrigeration circuit breaker at the electrical panel and set the desire temperature inside the refrigerator. The refrigerator operates on 12 volts. Carefully monitor the use of the refrigerator when the engine is not charging the 12-volt system as when you are at anchor. Keep the fridge off at night! Use a cooler, when possible, for all your drinks to keep the refrigerator door closed as much as possible. The fridge pump-out switch is located just under the sink.

## Barbeque

The barbecue is mounted on the aft starboard railing. Attach a propane bottle to the regulator. Carefully light the unit with its ignition switch. The barbecue generates a lot of heat and cooks hot and fast. Please clean up the BBQ when finished using it to prevent grease and dirt from soiling the boat. *Note: Propane bottles are not stocked by AYC. You will need to purchase one if extras are not found on board.* Caution -- For safety reasons, do not store an opened propane bottle within the salon or engine compartment. Chances are these will leak slightly once opened and propane gas could settle into low spaces. Store these bottles in the lazarette. Ensure flammable materials are not near the barbecue.



## HEATING SYSTEMS

### Forced Air Diesel Furnace

The Domestic electric heat pumps for air conditioning and heat. There are 3 of them one aft, one center and a 3<sup>rd</sup> one in the bow. There is a separate thermostat for each area. It provides heat and air much like your household furnace. It only runs shore power or generator. Turn on the switch in each of the 3 areas and set the temperature at the desired temperature. Check the exhaust on the port midships to make certain that no obstruction such as a fender or line exists.



## ELECTRONICS SYSTEMS

All electronics manuals are located above the navigation station.

### VHF Radio

*Ohana* is equipped with a marine VHF radio. The Federal Communications Commission (FCC) licenses it as a ship station. This radio can be an extremely valuable source of information, such as weather and tides. In an emergency, it is a vital source of assistance. It can also provide telephone contact with people on shore through the marine operator. The operation of this station is strictly controlled by Part 80 of the FCC rules and regulations, and the Communications Act of 1934. You should review the communications section of Chapman's Piloting to familiarize yourself with these rules before using the transmitter.



## **Depth Sounder/Knot Meter/Wind Speed**

These instruments are Raymarine. The knot meter and wind direction are mounted on the center table. Each has a cover which should be in place when not in use. When removed, store them below in the locker forward of the navigation table.

The depth sounder is located to the right of the starboard helm should provide reliable readings in shallow waters. If in doubt, switch it off. Then turn it back on to reset. If your reading is blinking, it is a false reading. False readings can occur in depths of more than 200 feet, or in areas of strong currents or tides. It also reads on the GPS chart plotter.

## **Global Positioning System (GPS)**

A fixed mount Raymarine GPS is also mounted on the helm. Refer to the onboard Raymarine manual for operating instruction. Ohana is equipped with a Raymarine Autopilot. Refer to the onboard Raymarine manual for operating instructions.

## **Radar - Ray Marine**

Radar is displayed on the GPS screen as an overlay or a split.



## **AIS Chart Plotter**

AIS is integrated into the chart plotter screen, which also includes radar overlay or radar split screen

## **Radio – Bluetooth**

The sound system is located at the navigation station. It is activated with your Bluetooth on your cell phone.

## **TV/DVD Player with remote control**

Installed above the chart table and is 12 volt with built in DVD unit.

## **Bilge Pumps**

Ohana is equipped with a 33 GPM bilge pump with a separate automatic float switch. The pump master switch located on the electrical panel will turn the pump on for testing. However the pump is permanently wired for automatic operation. You may occasionally hear the pump operate due to condensation. An auxiliary, hand operated, bilge pump is operated in the cockpit using the handle provided for that purpose. The handle is stored under to lid of the starboard cockpit lazarette. This is used only in emergency situations.

## **Thru-Hull Sea Cocks**

Sea cocks are open when their handles are in line with plumbing (typically vertical), and closed when perpendicular to plumbing (typically horizontal). All sea cocks (except as noted herein) are normally left open while cruising. Please leave all open when returning the boat. Below water line sea cock locations (also refer to thru-hull diagram):

- Raw water engine intake (under aft stateroom mattress)
- Galley sink drain (under sink)
- Head sink drain (under head sink)
- Head seawater intake (under head sink)
- Holding Tank overboard discharge (stdbd. lazarette)

## **Dodger And Bimini**

*Ohana* is equipped with a dodger and Bimini. The dodger windshields may be cleaned only with dawn dishwasher soap and water, with a veery soft cloth. Please do not use regular window cleaner and/or paper towels, as they will scratch the material.

# **SAFETY EQUIPMENT**

## **First Aid Kit**

The ship's first aid kit is located in the cabinet at the bottom starboard, just below the gangway. Please notify AYC of any items used from this kit during your trip so they may be replaced.

## **Fire Extinguishers**

There are three fire extinguishers aboard. One is located in the Aft port state room. The second is located in forward state room. The third is located on the bulkhead that adjoins the galley.

## **Signaling Flares**

The emergency flares are located in the second drawer cabinet, just below stairway entering into the main cabin.

## **Life Jackets**

Personal flotation devices (PFD – life jackets) are stored in stern outside seat locker, as well as some in the cabinet staterooms.

## **Steering Gear Failure**

In the event of steering gear failure, remove the round cover located under the helm seat and insert the emergency tiller. The emergency tiller is stowed in the starboard cockpit lazarette.

## **Engine Spares/Tools**

The engine spares box is stowed under the starboard chart table settee. This includes oil filter, raw water impeller, pump parts, and other small parts. There are various tools stored in the starboard settee along with extra oil and coolant.